Permit #: 28.0803-PSD

**Effective Date: DRAFT** 

# SOUTH DAKOTA DEPARTMENT OF

## **ENVIRONMENT AND NATURAL RESOURCES**

### PREVENTION OF SIGNIFICANT DETERIORATION

## AIR QUALITY PRECONSTRUCTION PERMIT

Steven M Pirner, Secretary Department of Environment and Natural Resources

#### Under the South Dakota Air Pollution Control Regulations

Pursuant to Chapter 34A-1-21 of the South Dakota Codified Laws and the Air Pollution Control Regulations of the State of South Dakota and in reliance on statements made by the owner designated below, a permit to construct and operate is hereby issued by the Secretary of the Department of Environment and Natural Resources. This permit authorizes such owner to construct and operate the permitted units at the location designated below and under the listed conditions:

#### A. Owner

1. Company name and address

Otter Tail Power Company Big Stone II PO Box 496 215 South Cascade Street Fergus Falls, Minnesota 56538-0496

2. Actual Source Location and Mailing Address if Different from Above

48450 144<sup>th</sup> Street Big Stone City, South Dakota

3. Permit Contact

Terry Graumann; Manager, Environmental Services (218) 739-8407

4. Facility Contact

Terry Graumann; Manager, Environmental Services (218) 739-8407

5. Responsible Official

Terry Graumann; Manager, Environmental Services (218) 739-8407

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#### B. Type of Operation

A coal fired electric steam generating facility. The facility has a nominal net rating of 600 megawatts.

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#### 1.0 STANDARD CONDITIONS

Construction and operation of source. In accordance with Administrative Rules of South Dakota (ARSD) 74:36:09:02, as referenced to 74:36:05:16.01(8), the owner or operator shall construct and operate the units, controls, and processes as described in Table 1 in accordance with the statements, representations, and supporting data contained in the complete permit application submitted and dated July 20, 2005, unless modified by the conditions of this permit. The application consists of the application forms, supporting data, and supplementary correspondence. If the owner or operator becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in an application, such information shall be promptly submitted.

Table 1 – Description of Permitted Units, Operations, and Processes

	Table 1 - Description of Fermitiea Units, Operations, and Frocesses				
Unit	Description	Operating Rate	Control Device		
#13	Super-critical pulverized coal	6,000 million Btus per	Baghouse, wet flue gas		
	fired boiler fired on	hour heat input <sup>1</sup>	desulfurization; and		
	subbituminous coal.		selective catalytic reduction.		
#14	Fire pump fired on ultra low	525 horsepower <sup>1</sup>	Catalyzed diesel particulate filter		
	sulfur diesel				
#15	Generator fired on ultra low	1,500 kilowatts <sup>1</sup>	Catalyzed diesel particulate filter		
	sulfur diesel				
#16	Industrial cooling tower with 18	Not Applicable	Drift eliminator		
	cells				
#17	Emergency reclaim hopper	380 tons per hour <sup>2</sup>	Baghouse		
#18	Loading coal into coal silos #1,	380 tons per hour <sup>2</sup>	Baghouse		
	#2, and #3				
#19	Loading coal out of coal silos	380 tons per hour <sup>2</sup>	Baghouse		
	#1, #2, and #3				
#20	Limestone reclaim conveyor	11 tons per hour <sup>2</sup>	Baghouse		
#21	Limestone receiving hopper	11 tons per hour <sup>2</sup>	Baghouse		
#22	Plant transfer/silo fill system	380 tons per hour <sup>2</sup>	Baghouse		
#23	Fly ash silo bin vent	28 tons per hour <sup>2</sup>	Baghouse		
#24	Limestone day bin vent #1	28 tons per hour <sup>2</sup>	Baghouse		
#25	Limestone day bin vent #2	11 tons per hour <sup>2</sup>	Baghouse		
#26	Transfer from existing conveyor	380 tons per hour <sup>2</sup>	Baghouse		
	#2 to silo feed conveyor	_			
#27	Crusher house	380 tons per hour <sup>2</sup>	Baghouse		
#28	Limestone stack out conveyor	11 tons per hour <sup>2</sup>	Baghouse		

<sup>&</sup>lt;sup>1</sup> – The operating rate is the nominal or manufacturer listed operating rate noted in the PSD application.

<sup>&</sup>lt;sup>2</sup> – The operating rates are the annual average rates of the equipment or system noted in the PSD application.

- 1.2 <u>Duty to comply.</u> In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(12), the owner or operator shall comply with the conditions of this permit. An owner or operator who knowingly makes a false statement in any record or report or who falsifies, tampers with, or renders inaccurate, any monitoring device or method is in violation of this permit. A violation of any condition in this permit is grounds for enforcement, reopening this permit, permit termination, or denial of a permit renewal application. The owner or operator, in an enforcement action, cannot use the defense that it would have been necessary to cease or reduce the permitted activity to maintain compliance. The owner or operator shall provide any information requested by the Secretary to determine compliance or whether cause exists for reopening or terminating this permit.
- 1.3 Property rights or exclusive privileges. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(12), the State's issuance of this permit, adoption of design criteria, and approval of plans and specifications does not convey any property rights of any sort, any exclusive privileges, any authorization to damage, injure or use any private property, any authority to invade personal rights, any authority to violate federal, state or local laws or regulations, or any taking, condemnation or use of eminent domain against any property owned by third parties. The State does not warrant that the owner's or operator's compliance with this permit, design criteria, approved plans and specifications, and operation under this permit, will not cause damage, injury or use of private property, an invasion of personal rights, or violation of federal, state or local laws or regulations. The owner or operator is solely and severally liable for all damage, injury or use of private property, invasion of personal rights, infringement of federal, state or local laws and regulations, or taking or condemnation of property owned by third parties, which may result from actions taken under the permit.
- **1.4** Penalty for violating a permit condition. In accordance with South Dakota Codified Law (SDCL) 34A-1, a violation of a permit condition may subject the owner or operator to civil or criminal prosecution, a state penalty of not more than \$10,000 per day per violation, injunctive action, administrative permit action, and other remedies as provided by law.
- **1.5** <u>Inspection and entry</u>. In accordance with SDCL 34A-1-41, the owner or operator shall allow the Secretary to:
- 1. Enter the premises where a regulated activity is located or where pertinent records are stored;
- 2. Have access to and copy any records that are required under this permit;
- 3. Inspect operations regulated under this permit; and/or
- 4. Sample or monitor any substances or parameters for the purpose of assuring compliance.
- **1.6** Severability. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(11), any portion of this permit that is void or challenged shall not affect the validity of the remaining permit requirements.

#### 2.0 CONSTRUCTION AND OPERATING PERMIT DEADLINES

- **2.1** Commence construction. In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21(r)(2), the owner or operator shall commence construction within 18 months of the effective date of this permit. If construction is delayed or interrupted for a period of 18 months or more this permit becomes invalid. The owner or operator may apply, before the end of the 18-month period, to the Secretary for an extension. The Secretary may grant an extension after the owner or operator satisfactorily demonstrates that an extension is justified.
- **2.2** Submit operating permit application. In accordance with ARSD 74:36:05:03.01, the owner or operator shall submit a complete permit application to revise permit #28.0801-29 within 12 months after commencing operation of the pulverized coal fired boiler (Unit #13). Commencing operation means the initial startup of the boiler, which is the first date that the boiler was operated.
- **2.3 Submit acid rain permit application.** In accordance with ARSD 74:36:16.01, the owner or operator shall submit a complete acid rain permit application 24 months prior to commencing operation of the pulverized coal fired boiler (Unit #13). Commencing operation means the initial startup of the boiler, which is the first date that the boiler was operated.

#### 3.0 RECORD KEEPING AND REPORTING REQUIREMENTS

**Record keeping and reporting.** In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(9), the owner or operator shall maintain all monitoring data, records, reports, and pertinent information specified by this permit for five years from the date of sample, measurement, report, or application. The records shall be maintained on site for the first two years and may be maintained off site for the last three years. All records must be made available to the Secretary for inspection. All notifications and reports shall be submitted to the following address:

South Dakota Department of Environment and Natural Resources PMB 2020, Air Quality Program 523 E. Capitol, Joe Foss Building Pierre, SD 57501-3181

- **3.2 Signatory Requirements.** In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:12, all applications submitted to the Secretary shall be signed and certified by a responsible official. A responsible official for a corporation is a responsible corporate officer and for a partnership or sole proprietorship is a general partner or the proprietor, respectively. All reports or other information submitted to the Secretary shall be signed and certified by a responsible official or a duly authorized representative. A person is a duly authorized representative only if:
- 1. The authorization is made in writing by a person described above and submitted to the

- Secretary; and
- 2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

The responsible official shall notify the Secretary if an authorization is no longer accurate. The new duly authorized representative must be designated prior to or together with any reports or information to be signed by a duly authorized representative.

**Certification statement.** In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(14)(a), all documents required by this permit, including reports, must be certified by a responsible official or a duly authorized representative. The certification shall include the following statement:

"I certify that based on information and belief formed after reasonable inquiry the statements and information in this document and all attachments are true, accurate, and complete."

- **3.4** Construction date notification. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(9), the owner or operator shall notify the Secretary of the date construction commences on the pulverized coal fired boiler system. The notification shall be postmarked within 15 days after the date construction commenced.
- 3.5 <u>Initial startup notification.</u> In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(9), the owner or operator shall notify the Secretary of the actual date of the initial startup of the pulverized coal fired boiler (Unit #13). The notification shall be postmarked within 15 days after the date of initial startup. Initial startup is the first date that the pulverized coal fired boiler was operated.
- **3.6 Initial quarterly reports.** In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(9), the owner or operator shall submit a quarterly report. The quarterly reports shall be submitted until permit #28.0801-29 has been revised and includes the equipment listed in Table 1. The report shall contain the following information:
- 1. Name of the facility, permit number, reference to this permit condition, and identify the submittal as a quarterly report;
- 2. Calendar dates covered in the quarterly report; and
- 3. The quantity of sulfur dioxide and nitrogen oxide from the permitted equipment listed in Table 1 and in permit #28.0801-29, in tons, in each month and the 12-month rolling total for each month in the reporting period and supporting documentation.

The quarterly report shall be postmarked no later than the 30th day following the end of each calendar quarter (i.e. January 30<sup>th</sup>, April 30<sup>th</sup>, July 30<sup>th</sup>, and October 30<sup>th</sup>).

#### 4.0 PREVENTION OF SIGNIFICANT DETERIORATION LIMITS

**4.1 BACT limits for particulate matter.** In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21(j)(3), the owner or operator shall not allow the emissions of particulate matter 10 microns in diameter or less (PM10) in excess of the emission limits specified in Table 2 for the appropriate permitted unit, operation, and process.

Table 2 – PM10 BACT Emission Limits

Unit	Description	PM10 Emission Limit <sup>1</sup>
#13	Super-critical pulverized coal	0.012 pounds/million Btu (filterable); and
	fired boiler	0.03 pounds/million Btu (filterable and condensable) <sup>2</sup>
#14	Fire pump	0.15 grams/horsepower-hour (filterable)
#15	Generator	0.15 grams/horsepower-hour (filterable)
#17	Emergency reclaim hopper	0.01 grains/standard cubic foot (filterable)
#18	Loading coal	0.01 grains/standard cubic foot (filterable)
#19	Unloading coal	0.01 grains/standard cubic foot (filterable)
#20	Limestone reclaim hopper	0.01 grains/standard cubic foot (filterable)
#21	Limestone receiving hopper	0.01 grains/standard cubic foot (filterable)
#22	Plant transfer/silo fill system	0.01 grains/standard cubic foot (filterable)
#23	Fly ash silo bin vent	0.01 grains/standard cubic foot (filterable)
#24	Limestone day bin vent #1	0.01 grains/standard cubic foot (filterable)
#25	Limestone day bin vent #2	0.01 grains/standard cubic foot (filterable)
#26	Transfer conveyor	0.01 grains/standard cubic foot (filterable)
#27	Crusher house	0.01 grains/standard cubic foot (filterable)
#28	Limestone stack out conveyor	0.01 grains/standard cubic foot (filterable)

<sup>&</sup>lt;sup>1</sup> – Compliance with the emission limit is based on the average of three test runs; and

**4.2 BACT limits for carbon monoxide.** In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21(j)(3), the owner or operator shall not allow the emissions of carbon monoxide in excess of the emission limits specified in Table 3 for the appropriate permitted unit, operation, and process.

Table 3 – Carbon Monoxide BACT Emission Limits

Unit	Description	Carbon Monoxide Emission Limit <sup>1</sup>
#13	Super-critical pulverized coal fired boiler	0.15 pounds/million Btu
#14	Fire pump	2.6 grams/horsepower-hour
#15	Generator	2.6 grams/horsepower-hour

<sup>&</sup>lt;sup>1</sup> – Compliance with the emission limit is based on the average of three test runs;

<sup>&</sup>lt;sup>2</sup> – If the initial testing demonstrates an emission rate less than 0.03 pounds per million Btus (filterable and condensable), the emission limit shall be lowered to the emission rate achieved during the performance test multiplied by 1.1 or 0.018 pounds per million Btus, whichever is greater. In no case shall the limit be greater than 0.03 pounds per million Btus (filterable and condensable).

**4.3 BACT limits for volatile organic compounds as carbon.** In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21(j)(3), the owner or operator shall not allow the emissions of volatile organic compounds (VOCs) as carbon in excess of the emission specified limits in Table 4 for the appropriate permitted units, operations, and processes.

Table #4 - Volatile Organic Compound as Carbon BACT Emission Limits

Unit	Description	VOC as Carbon Emission Limit <sup>1</sup>
#13	Super-critical pulverized coal fired boiler	0.0036 pounds/million Btu
#14	Fire pump	1.13 grams/horsepower-hour
#15	Generator	0.51 grams/horsepower-hour

<sup>&</sup>lt;sup>1</sup> – Compliance with the emission limit is based on the average of three test runs;

**4.4 BACT limit for sulfuric acid mist.** In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21(j)(3), the owner or operator shall not allow the emissions of sulfuric acid mist in excess of the emission limits specified in Table 5 for the appropriate permitted unit, operation, and process.

Table 5 - Sulfuric Acid Mist BACT Emission Limit

Unit	Description	Sulfuric Acid Mist Emission Limit <sup>1</sup>
#13	Super-critical pulverized coal fired boiler	0.005 pounds/million Btu

<sup>&</sup>lt;sup>1</sup> – Compliance with the emission limit is based on the average of three test runs.

**4.5 BACT limit for fluoride.** In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21(j)(3), the owner or operator shall not allow the emissions of fluoride in excess of the emission limits specified in Table 6 for the appropriate permitted unit, operation, and process.

Table 6 - Fluoride BACT Emission Limit

Unit	Description	Fluoride Emission Limit <sup>1</sup>
#13	Super-critical pulverized coal fired boiler	0.0006 pounds/million Btu

<sup>&</sup>lt;sup>1</sup> – Compliance with the emission limit is based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods.

- **4.6** Paved roads and parking lots. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01, the owner or operator shall pave all haul roads and parking lots.
- **4.7** Cooling Tower. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01, the owner or operator install a 0.0005 percent efficient drift eliminators.

#### 5.0 OTHER APPLICABLE LIMITS

- **New source performance standard for Unit #13.** In accordance with ARSD 74:36:07:03, as reference to 40 CFR §§ 60.40a through 60.51a, the owner or operator shall comply with all applicable standards and limitations, reporting, monitoring, recordkeeping, testing and notification requirements in the standards of performance for electric utility steam generating units for which construction is commenced after September 18, 1978. The specific emission limits from this new source performance standard are as follows:
- 1. In accordance with 40 CFR § 60.42a(b), the owner or operator shall not cause to be discharged into the atmosphere gases from Unit #13 which exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. The opacity standard applies at all times except during periods of startup, shutdown, or malfunction. This provision does not apply when the presence of uncombined water is the only reason for failure to meet the requirement;
- 2. In accordance with 40 CFR §§ 60.42a(a)(1) and 60.48a(c), the owner or operator shall not cause to be discharged into the atmosphere gases from Unit #13 that contain particulate matter in excess of 0.015 pounds per million Btu. The particulate standard applies at all times except during periods of startup, shutdown, or malfunction;
- 3. In accordance with 40 CFR §§ 60.43a(a), 60.43a(g) and 60.48a(c), the owner or operator shall not cause to be discharged into the atmosphere gases from Unit #13 that contain sulfur dioxide in excess of the emission limit specified in Table 7.

Table 7 - Sulfur Dioxide Emission Limit

Unit	Description	Sulfur Dioxide Emission Limit <sup>1</sup>
#13	Super-critical pulverized coal fired boiler	1.4 pounds per megawatt-hour gross energy output or
		5 percent of the potential combustion concentration (95 percent reduction)

<sup>&</sup>lt;sup>1</sup> – Compliance with the sulfur dioxide limit and percent reduction are based on a 30-day rolling average.

The sulfur dioxide emission standards apply at all times except during periods of startup, shutdown, or when both an emergency conditions exist and the procedures defined in the new source performance standard are implemented;

- 4. In accordance with 40 CFR §§ 60.44a(d)(1) and 60.48a(c), the owner or operator shall not cause to be discharged into the atmosphere gases from Unit #13 that contain nitrogen oxide in excess of 1.0 pound per megawatt-hour gross energy output. Compliance with the nitrogen oxide limit is based on a 30-day rolling average. The nitrogen emission standard applies at all times except during periods of startup, shutdown, or malfunction; and
- 5. In accordance with 40 CFR §§ 60.45a(a)(1), 60.45a(a)(2)(i), and 60.48a(c) the owner or operator shall not cause to be discharged into the atmosphere gases from Unit #13 that contain mercury in excess of 0.000042 pounds per megawatt-hour gross energy output. Compliance with the mercury limit is based on a 12-month rolling average. The mercury standard applies at all times except during periods of startup, shutdown, or malfunction.

- **Mercury allowances for Unit #13.** In accordance with 40 CFR §§ 60.4101 through 60.4176, the owner or operator shall comply with all applicable standards and limitations, reporting, monitoring, recordkeeping, testing and notification requirements of the Mercury Budget Training Program. The owner or operator shall maintain enough mercury allowances, in ounces, for its actual mercury emissions from Unit #13.
- **5.3** Acid rain requirements for Unit #13. In accordance with ARSD 74:36:16, the owner or operator shall comply with all applicable standards and limitations, reporting, monitoring, recordkeeping, testing and notification requirements of the Acid Rain Program.
- **5.4 State opacity limit.** In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:12:01, the owner or operator may not discharge into the ambient air an air contaminant of a density equal to or greater than that designated as 20 percent opacity from any permitted unit, operation, or process listed in Table 1. This provision does not apply when the presence of uncombined water is the only reason for failure to meet the requirement. An exceedance of the operating limit is not considered a violation during soot blowing, start-up, shutdown, or malfunctions. Malfunction means any sudden and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. A failure caused entirely or in part by poor maintenance, careless operation, preventable equipment breakdown, or any other cause within the control of the owner or operator of the source is not a malfunction and is considered a violation.
- **Permit** #28.0801-29 Particulate matter limits. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), on or after the initial startup of the pulverized coal fired boiler (Unit #13) the owner or operator shall not allow the emissions of particulate matter 10 microns in diameter or less (PM10) in excess of the emission limits specified in Table 8 for the appropriate permitted units, operations, and processes listed in permit #28.0801-29.

Table 8 – PM10 Emission Limits for units in permit #28.0801-29

Unit	Description	PM10 Emission Limit <sup>1</sup>
#1	Cyclone coal fired boiler	0.26 pounds/million Btu (filterable)
#2	Auxiliary boiler	0.01 pounds/million Btu (filterable)
#3	Heating boiler	0.01 pounds/million Btu (filterable)
#4	Generator	0.32 grams/horsepower-hour (filterable)
#5	Live fuel storage building	0.02 grains/standard cubic foot (filterable)
#6	Rotary car dumper conveyor	0.01 grains/standard cubic foot (filterable)
#7	Rotary car dumper building	0.01 grains/standard cubic foot (filterable)
#8	Fuel transfer house	0.02 grains/standard cubic foot (filterable)
#9	North Fuel conveying system and silo vents	0.02 grains/standard cubic foot (filterable)
#10	South fuel conveying system, silo vents, and plant distribution bin	0.02 grains/standard cubic foot (filterable)

Unit	Description	PM10 Emission Limit <sup>1</sup>
#11	Fly ash storage silo	0.02 grains/standard cubic foot (filterable)
#12	Lime storage silo	0.02 grains/standard cubic foot (filterable)

<sup>&</sup>lt;sup>1</sup> – Compliance with the emission limit is based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods.

**PSD exemption – Plant wide sulfur dioxide limit.** In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall not emit into the ambient air greater than or equal to 13,278 tons of sulfur dioxide per 12-month rolling period from the permitted units in Table 1 and permit #28.0801-29. The plant wide limit includes periods of startup, shutdown, and malfunctions. The plant wide sulfur dioxide emission limit includes Units #1, #2, #3, and #4 from permit #28.0801-29 and Units #13, #14, and #15 from Table 1. The first month of the 12-month rolling total shall begin after a reasonable shakedown period. A reasonable shakedown period shall not exceed 180 days from initial startup of the pulverized coal fired boiler (Unit #13).

The plant wide sulfur dioxide limit allows the permitted equipment in Table 1 to forgo a prevention of significant deterioration review. Any relaxation in the permit that increases applicable emissions equal to or greater than 13,278 tons of sulfur dioxide per 12-month rolling period shall require a full prevention of significant deterioration review for sulfur dioxide as though construction had not commenced on the source.

The sulfur dioxide emissions monitored by the continuous emission monitoring systems on Unit #1 and #13 shall be used in the plant wide limit compliance demonstration.

- **5.7** Sulfur content limit for distillate oil. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), on or after the initial startup of the pulverized coal fired boiler (Unit #13) the owner or operator shall not burn distillate oil with a sulfur content greater than 0.05 percent sulfur by weight in Unit #2, #3, and #4 of permit #28.0801-29. In addition, the owner or operator shall not burn distillate oil with a sulfur content greater than 0.015 percent sulfur by weight in Unit #14 and #15 (see Table 1).
- **PSD** exemption Plant wide nitrogen oxide limit. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall not emit into the ambient air greater than or equal to 16,448 tons of nitrogen oxide per 12-month rolling period from the permitted units in Table 1 and permit #28.0801-29. The plant wide nitrogen oxide emission limit includes Unit #1, #2, #3, and #4 from permit #28.0801-29 and Unit #13, #14, and #15 from Table 1. The plant wide limit includes periods of startup, shutdown, and malfunctions. The first month of the 12-month rolling total shall begin after a reasonable shakedown period. A reasonable shakedown period shall not exceed 180 days from initial startup of the pulverized coal fired boiler (Unit #13).

The plant wide nitrogen oxide limit allows the permitted equipment in Table 1 to forgo a prevention of significant deterioration review. Any relaxation in the permit that increases applicable emissions equal to or greater than 16,448 tons of nitrogen oxide per 12-month rolling

period shall require a full prevention of significant deterioration review for nitrogen oxide as though construction had not commenced on the source.

The nitrogen oxide emissions monitored by the continuous emission monitoring systems on Unit #1 and #13 shall be used in the plant wide limit compliance demonstration.

**5.9** Short term nitrogen oxide emission limits. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), on or after the initial startup of the pulverized coal fired boiler (Unit #13) the owner or operator shall not allow the emissions of nitrogen oxide in excess of the emission limit specified in Table 9 for the appropriate permitted units, operations, and processes in Table 1 and in permit #28.0801-29.

Table 9 – Nitrogen oxide limit

Unit	Description	Location	Nitrogen Oxide Emission Limit <sup>1</sup>
#2	Auxiliary Boiler	Permit #28.0801-29	0.17 pounds per million Btus heat input
#3	Heating Boiler	Permit #28.0801-29	0.14 pounds per million Btus heat input
#4	Generator	Permit #28.0801-29	0.024 pounds per horsepower hour
#14	Fire pump	Table 1	3.0 grams/horsepower-hour <sup>2</sup>
#15	Generator	Table 1	4.8 grams/horsepower-hour <sup>2</sup>

<sup>&</sup>lt;sup>1</sup> – Compliance with the emission limit is based on the average of three test runs; and

**5.10** Permit #28.0801-29 – Unit #1 operational limit. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), on or after the initial startup of the pulverized coal fired boiler (Unit #13) the owner or operator shall route the emissions from Unit #1 in permit #28.0801-29 through the wet flue gas desulfurization system associated with Unit #13 at all times except for those time periods when the wet flue gas desulfurization system is not in operation due to malfunctions, repairs, preventative maintenance, or to conduct emissions testing to demonstrate compliance with the emission limits that are unique to Unit #13.

#### 6.0 PERFORMANCE TESTS

6.1 Performance test may be required. In accordance with ARSD 74:36:11:02, the Secretary may request a performance test. A performance test shall be conducted while operating the unit at or greater than 90 percent of its maximum design capacity, unless otherwise specified by the Secretary. A performance test that is conducted while operating less than 90 percent of its maximum design capacity will result in the operation being limited to the percent achieved during the performance test. The Secretary has the discretion to extend the deadline for completion of performance test required by the Secretary if circumstances reasonably warrant but will not extend the deadline past a federally required performance test deadline.

<sup>&</sup>lt;sup>2</sup> – The emission limit is for nitrogen oxides plus non-methane organic compounds

- **Test methods and procedures.** The owner or operator shall conduct the performance test in accordance with 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M. The Secretary may approve an alternative method if a performance test specified in 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M is not federally applicable or federally required.
- **Representative performance test.** In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8(c), performance tests shall be conducted under such conditions as the Secretary shall specify to the owner or operator based on the representative performance of the unit being tested. The owner or operator shall make available to the Secretary such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test.
- **6.4 Submittal of test plan.** In accordance with ARSD 74:36:11:01, the owner or operator shall submit the proposed testing procedures to the Secretary at least 30 days prior to any performance test. The Secretary will notify the owner or operator if the proposed test procedures are approved or denied. If the proposed test procedures are denied, the Secretary will provide written notification that outlines what needs to be completed for approval.
- **Notification of test.** In accordance with ARSD 74:36:11:03, the owner or operator shall notify the Secretary at least 10 days prior to the start of a performance test to arrange for an agreeable test date when the Secretary may observe the test. The Secretary may extend the deadline for the performance test in order to accommodate schedules in arranging an agreeable test date.
- **6.6 Performance test report.** In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall submit a performance test report to the Secretary within 60 days after completing the performance test or by a date designated by the Secretary. The performance test report shall contain the following information:
- 1. A brief description of the process and the air pollution control system being tested;
- 2. Sampling location description(s);
- 3. A description of sampling and analytical procedures and any modifications to standard procedures;
- 4. Test results;
- 5. Quality assurance procedures and results;
- 6. Records of operating conditions during the test, preparation of standards, and calibration procedures;
- 7. Raw data sheets for field sampling and field and laboratory analyses;
- 8. Documentation of calculations;
- 9. All data recorded and used to establish parameters for compliance monitoring; and
- 10. Any other information required by the test method.
- 6.7 Initial performance test for Unit #13. In accordance with ARSD 74:36:11:02, the

owner or operator shall conduct an initial performance test on Unit #13. The initial performance tests shall be conducted to determine emission rates of opacity, particulate matter 10 microns in diameter or less (filterable and condensable), particulate matter (filterable and condensable), sulfur dioxide, nitrogen oxide, volatile organic compounds as carbon, carbon monoxide, mercury, sulfuric acid mist, and fluoride. The initial performance test shall be conducted within 180 days after initial startup of Unit #13.

- **6.8** Initial performance test for Units #14 and #15. In accordance with ARSD 74:36:11:02, the owner or operator shall conduct an initial performance test on Units #14 and #15. The initial performance tests shall be conducted to determine emission rates of opacity, particulate matter 10 microns in diameter or less (filterable), nitrogen oxide, volatile organic compounds as carbon, and carbon monoxide. The initial performance test shall be conducted within 180 days after initial startup of Unit #13.
- **6.9** Permit #28.0801-29 Initial performance test for Unit #2, #3, and #4. In accordance with ARSD 74:36:11:02, the owner or operator shall conduct an initial performance test on Units #2, #3, and #4 in permit #28.0801-29. The initial performance tests shall be conducted to determine emission rates of particulate matter 10 microns in diameter or less (filterable) and nitrogen oxide. The initial performance test shall be conducted within 180 days after initial startup of Unit #13.
- **6.10** <u>Initial performance test for other units</u>. In accordance with ARSD 74:36:11:02, the owner or operator shall conduct an initial performance test on following units in permit #28.0801-29 and Table 1:
- 1. Permit #28.0801-29:
  - Unit #1;
  - Unit #5, #8, #11, or #12
  - Unit #6;
  - Unit #7; and
  - Unit #9 or #10
- 2. Table 1:
  - Unit #17 or #20;
  - Unit #18:
  - Unit #19;
  - Unit #21, #23, or #26
  - Unit #22;
  - Unit #24, #25, or #28; and
  - Unit #27.

The performance tests shall be conducted to determine emission rates of particulate matter 10 microns in diameter or less (filterable). The owner or operator shall conduct the performance tests within three years of initial startup of the pulverized coal fired boiler (Unit #13). At a minimum, five performance tests shall be conducted each year or until all tests are conducted within the three year period.

- **6.11** <u>Initial certification of continuous emission monitoring system</u>. In accordance with ARSD 74:36:11:02, the owner or operator shall conduct the initial certification of each continuous emission monitoring system required in permit condition 8.1 within 180 days of initial startup of the pulverized coal fired boiler (Unit #13).
- **6.12** Initial test of sulfur content of distillate oil for Unit #14 and #15. In accordance with ARSD 74:36:11:02, prior to firing distillate oil in Unit #14 and #15, the owner or operator shall obtain an initial fuel supplier certification for the first load of distillate oil purchased or received. The fuel supplier certification shall include the following information:
- 1. The name of the oil supplier;
- 2. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil. Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2. Residual oil means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6. Specifications for fuel oils are defined in the American Society for Testing and Materials in ASTM D396-78, "Standards Specifications for Fuel Oils"; and
- 3. A statement that the sulfur content of the oil does not exceed 0.015 weight percent sulfur.

In the case where a fuel supplier certification is not obtained for the first load of distillate oil purchased or received, the owner or operator shall collect a grab sample from the distillate oil storage tank. The grab sample shall be analyzed to determine the sulfur content of the distillate oil in the storage tank prior to burning the distillate oil.

- **6.13** Initial test of sulfur content of distillate oil for Unit #2, #3, and #4 of permit #28.0801-29. In accordance with ARSD 74:36:11:02, prior to firing distillate oil in Unit #2, #3, and #4 in permit #28.0801-29 on or before the initial startup of the pulverized coal fired boiler (Unit #13), the owner or operator shall obtain an initial fuel supplier certification for the first load of distillate oil purchased or received. The fuel supplier certification shall include the following information:
- 1. The name of the oil supplier;
- 2. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil. Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2. Residual oil means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6. Specifications for fuel oils are defined in the American Society for Testing and Materials in ASTM D396-78, "Standards Specifications for Fuel Oils"; and
- 3. A statement that the sulfur content of the oil does not exceed 0.015 weight percent sulfur.

In the case where a fuel supplier certification is not obtained for the first load of distillate oil purchased or received, the owner or operator shall collect a grab sample from the distillate oil storage tank. The grab sample shall be analyzed to determine the sulfur content of the distillate oil in the storage tank prior to burning the distillate oil.

#### 7.0 FUGITIVE DUST CONTROLS

- **7.1** Paved road and parking area controls. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall use a mechanical sweeper that collects particulate and is equipped with wet suppression, use a vacuum sweeper, or water flush all paved roads and parking areas that has the potential to be re-suspended during spring, summer and fall. During winter months or during freezing weather, the paved roads and parking lots shall be cleaned with the mechanical sweeper that collects particulate and is equipped with wet suppression or a vacuum sweeper. An alternative method may be approved by the Secretary if the owner or operator provides documentation that the alternative method is equivalent in controlling fugitive dust emission to the methods specified in this permit condition. The frequency of cleaning will be on an as needed basis to comply with the opacity limit in permit condition 7.4.
- **Open storage pile control.** In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall sample and analyze the silt content of open storage piles that have a height greater than or equal to three feet and have a total surface area greater than or equal to 150 square feet. The silt content analysis shall be conducted once per calendar year and in accordance with ASTM C-136 or another equivalent method approved by the Secretary. Silt is defined as any material with a particulate size less than 74 micrometers in diameter and passes through a number 200 sieve. The owner or operator shall implement one of the following control measures for each open storage pile that has a silt content of four percent by weight or greater:
- 1. Apply chemical stabilizer to the surface area of the open storage pile in a sufficient quantity and frequency to comply with the opacity limit in permit condition 7.4;
- 2. Apply water to the surface area of the open storage pile on an as needed basis to comply with the opacity limit in permit condition 7.4;
- 3. Install at least a two-sided enclosure with walls, which extend, at a minimum, to the top of the open storage pile and complies with the opacity limit in permit condition 7.4; or
- 4. An alternative method that the owner or operator has demonstrated can comply with the opacity limit in permit condition 7.4 and is approved by the Secretary.
- **7.3** Waste pit controls. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall control fugitive dust emissions from a waste pit. A waste pit means an area where particulate matter from the process equipment or pollution control devices is deposited for storage or disposal and the disposal area unit(s) has not been closed. The owner or operator shall implement one of the following control measures for waste pits:
- 1. Apply a soil cement or similar application that is approved by the Secretary over the entire waste pit area;
- 2. Apply water spray to adequately create a crusted surface over the entire waste pit area; or
- 3. Implement a combination of wind protection (wind-fence, wind-screen, three wall

enclosures) and soil cement or water spray applications.

Waste pit controls shall be applied or constructed in a manner that maintains compliance with the opacity limit in permit condition 7.4.

**7.4** Opacity limit for fugitive sources. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall not discharge a visible emission to the ambient air of a density equal to or greater than 20 percent opacity from an unpaved road, paved road or parking lot, crushing operation, open storage pile, track out area, or waste pit. The 20 percent opacity reading is based on a series of two minutes averages with a minimum observation period of six minutes. The opacity reading shall be determined by 40 CFR Part 60, Appendix A, Method 9.

If an operation exceeds the opacity limit, the Secretary will allow the owner or operator two opportunities to correct the exceedance with existing controls and/or control measures. In the event of a third exceedance from the same operation, the Secretary will notify the owner or operator that the Best Available Control Measure (BACM) for that operation must be reevaluated. The owner or operator shall reevaluate BACM for that operation and submit a written proposal to the Secretary on the proposed new BACM for the operation within 60 days of receiving the Secretary's notification. The Secretary shall approve or disapprove the proposed new BACM within 60 days of receiving the proposal from the owner or operator.

#### 8.0 CONTINUOUS EMISSION MONITORING SYSTEMS

- Continuous emission monitoring systems. In accordance with ARSD 74:36:07:03, ARSD 74:36:09, and ARSD 74:36:13, the owner or operator shall install, calibrate, maintain, and operate, an opacity, sulfur dioxide, nitrogen oxide, carbon monoxide, and a mercury continuous emission monitoring system on Unit #13. The continuous emission monitoring systems shall measure and record the emissions at all times, including periods of startup, shutdown, malfunctions or emergency conditions. Monitor downtime is allowed for system breakdowns, repairs, calibration checks, and zero and span adjustments and at times when Unit #13 is not in operation.
- **8.2** Performance specifications and quality assurance. In accordance with ARSD 74:36:07:03, ARSD 74:36:09, and ARSD 74:36:13, the continuous emission monitoring systems on Unit #13 shall meet the performance specifications in 40 CFR Part 60, Appendix B and the quality assurance requirements in 40 CFR Part 60 Appendix F or the performance specifications in 40 CFR Part 75, Appendix A and the quality assurance requirements in 40 CFR Part 75 Appendix B.